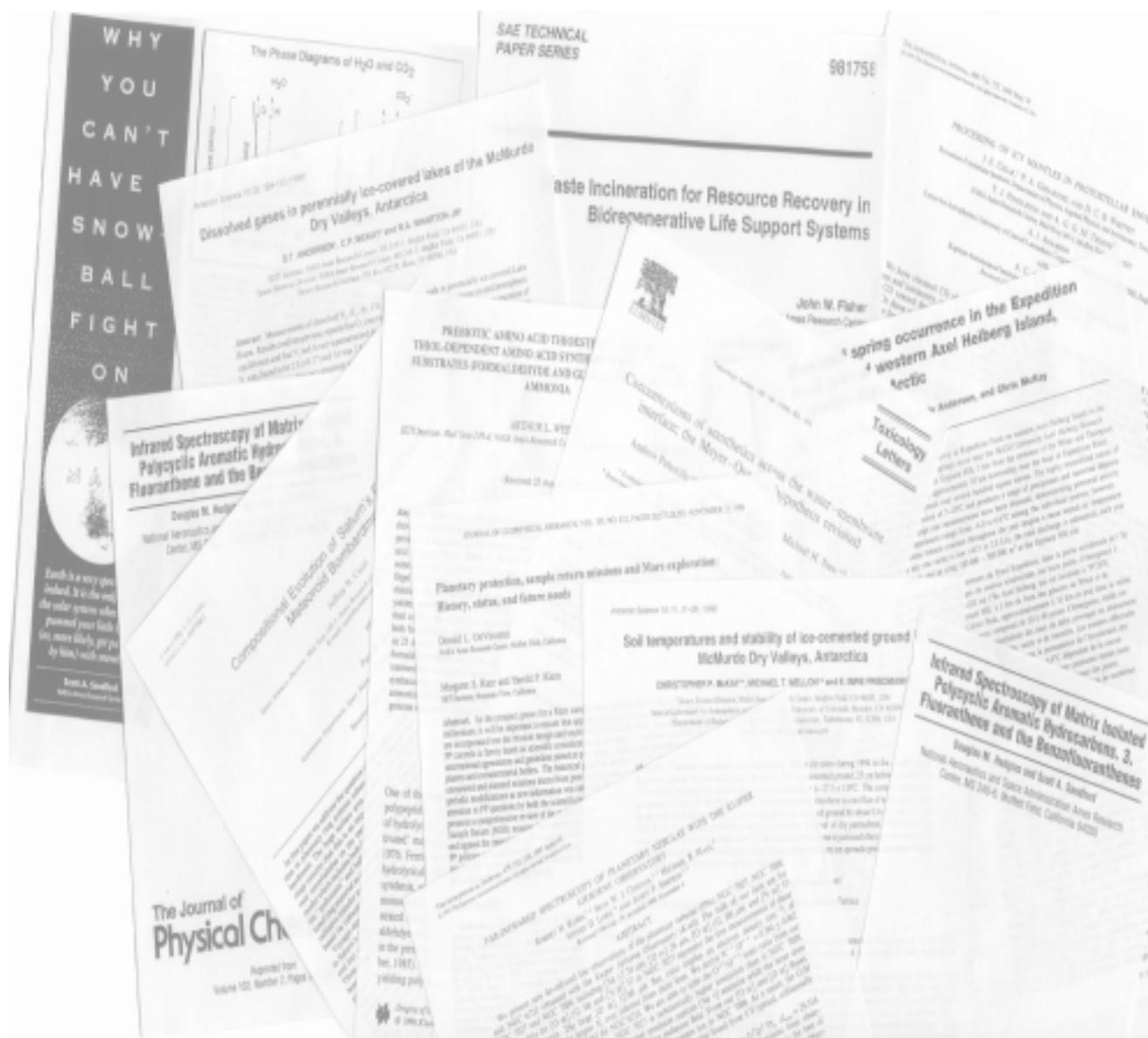


## **Space Science Division 2001 Bibliography**

The following is a compilation of peer-reviewed publications, with a 2001 publication date, authored by Division personnel. Also included are patents, extended abstracts, chapters in books, etc.



- Ackerman, A.S., and Marley, M.S. "Precipitating Condensation Clouds in Substellar Atmospheres." *Astrophysical Journal*, 556, 872 (2001).
- Allamandola, L., Sandford, S., Bernstein, M., Deamer, D., Dworkin, J., Elsila, J., and Zare, R. "The Production of Complex Organics from Interstellar Ices." 198th Meeting of the American Astronomical Society, Pasadena, CA, June 3-7, (2001).
- Anantram, M., Lance Delzeit, Alan Cassell, Jie Han and M. Meyyappan "Nanotubes in nanoelectronics: transport, growth and modeling." *Physica*, 11, 118-125 (2001).
- Bakes, E.L.O., A.G.G.M. Tielens and C. Bauschlicher "Theoretical Modeling of Infrared Fluorescence from Neutral and Charged Polycyclic Aromatic Hydrocarbons I." *Astrophys. J.*, 556, 501 (2001).
- Bakes, E.L.O., A.G.G.M. Tielens, C. Bauschlicher, D. Hudgins and L.J. Allamandola "Theoretical Modeling of Infrared Fluorescence from Neutral and Charged Polycyclic Aromatic Hydrocarbons II." *Astrophys. J.*, 560, 261-271 (2001).
- Bakes, E.L.O., McKay, C.P., Bauschlicher, C.W., and Lebonnois, S. "Macromolecules and their effects on chemistry and seasonal albedo variations of the Titan haze." American Astronomical Society, DPS meeting #33, #55.03 (2001).
- Batalha, C., and N. Batalha "The Stellar Mass Gain of TW Hya" in "Young Stars Near Earth: Progress and Prospects." Edited by: Ray Jayawardhana and Thomas Greene, San Francisco: Astronomical Society of the Pacific, 244, (2001).
- Batalha, N.M., J. Jenkins, G.S. Basri, W.J. Borucki, and D.G. Koch "Stellar variability ad its implications for photometric planet detection with Kepler." *ESA Special Publication*, SP-485, (2001).
- Bauschlicher, C., and E.L.O. Bakes "Anionic Polycyclic Aromatic Hydrocarbons and their Role in Catalytic H<sub>2</sub> Formation." *Chemical Physics*, 274, 11 (2001).
- Bebout, B.M., Des Marais, D.J., Garcia-Pichel, F., Hogan, M., Jahnke, L., Keller, R.M., and S.R. Miller "Ecophysiological changes in microbial mats incubated in a greenhouse collaboratory." Abstracts of the General Meeting of the NASA Astrobiology Institute, April 10-12, 2001, Washington, D.C, (2001).
- Becker, L., R. Poreda, A.G. Hunt, T.E. Bunch, and M. Rampino "Impact event at the Permian-Triassic Boundary: Evidence from extraterrestrial noble gases in fullerenes." *Science*, 291, 1530-1533 (2001).
- Bernstein, M.P., Dworkin, J.P., Sandford, S.A., and Allamandola, L.J. "Ultraviolet Irradiation of Naphthalene in H<sub>2</sub>O Ice: Implications for Meteorites and Biogenesis." *Meteoritics and Planetary Science*, 36, 351-358 (2001).
- Bernstein, M.P., Dworkin, J., Sandford, S.A., and Allamandola, L.J. "Formation of Meteoritic Molecules via Interstellar Ice Photochemistry." Astrobiology Conference, Crystal Mountain Resort, Washington, August 5-8, (2001).
- Bernstein, M.P., Ehrenfreund, P., Dworkin, J., Sandford, S.A., and Allamandola, L.J. "The Destruction of Amino Acids by Radiation in Space Environments." Astrobiology Conference, Crystal Mountain Resort, Washington, August 5-8, (2001).
- Billi,D., Friedmann, E.I., Helm, R.F. and Potts,M. "Gene transfer in the desiccation-tolerant cyanobacterium Chroococcidiopsis sp." *J.Bacteriol.*, 183, 2298-2305 (2001).

- Bishop, J.L., and V.E. Hamilton "A Study of Soil and Duricrust Models for Mars." *Lunar and Planet. Sci.* XXXII, CD-ROM abs. #1468. (2001).
- Bishop, J.L., and V.E. Hamilton "Reflectance and Emittance Spectra of Martian Meteorites." *Meteoritical Society Annual Meeting*, Rome, Sept. 2001, (2001).
- Bishop, J.L., and V.E. Hamilton "Spectroscopic Detection of Minerals in Martian Meteorites using Reflectance and Emittance Spectroscopy and Applications to Surface Mineralogy on Mars." *Eos. Trans. AGU*, 82(47) (2001).
- Bishop J.L., Banin A., Mancinelli R.L., and Klovstad M.R. "Detection of soluble and fixed NH<sub>4</sub><sup>+</sup> in clay minerals by DTA and IR reflectance spectroscopy: A potential tool for planetary surface exploration." *Planetary Space Science*, 50, 11-19 (2001).
- Bishop, J.L., Lougeare, A., Newton, J., Doran, P., Froeschl, H., Trautwein, A.X., Körner, W. and Koeberl, C. "Mineralogical and geochemical analyses of Antarctic sediments: A reflectance and Mössbauer spectroscopy study with applications for remote sensing on Mars." *Geochim. Cosmochim. Acta*, 65, 2875-2897 (2001).
- Bishop, J.L. "Mineralogy considerations for 2003 MER site selection and the importance for astrobiology." *First Mars 2003 Landing Site Workshop*, (2001).
- Bishop, J.L., Schiffman P., Murad E. and R. Southard "Iceland as a Model for Chemical Alteration on Mars." *Lunar and Planet. Sci.* XXXII, CD-ROM abs. #1435. (2001).
- Blake, D., D. Bish, D. Vaniman, S. Chipera, P. Sarrazin, S.A. Collins and S.T. Elliott "Remote in-situ quantitative mineralogical analysis using XRD/XRF." 11th V.M. Goldschmidt Conference, Hot Springs, VA, May 19, 2001, (2001).
- Blake, D.F., and P. Jenniskens "The Ice of Life." *Scientific American*, 285(2), 45-51 (2001).
- Borucki, W.J., D. Caldwell, D.G. Koch, L.D. Webster, J.M. Jenkins, Z. Ninkov, and R. Showen "The Vulcan Photometer: A dedicated photometer for extrasolar planet searches." *Publications of the Astronomical Society of the Pacific*, 113(782), 439-451 (2001).
- Borucki, W.J., D.G. Koch, and J.M. Jenkins "Expected results for the number of extrasolar planets vs their size and semi-major axis from the Kepler Mission." *Bulletin of the American Astronomical Society*, 33, 914 (2001).
- Boulanger, R., D. Overland, and H. Jones "Evaluation of Fieldbus and Component Object Model for Use with Advanced Life Support." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2299 (2001).
- Boynton, W.V., S.H. Bailey, D.K. Hamara, M.S. Williams, R.C. Bode, M.R. Fitzgibbon, W. Ko, M.G. Ward, K.R. Sridhar, J.A. Blanchard, R.D. Lorenz, R.D. May, D.A. Paige, A.V. Pathare, D.A. Kring, L.A. Leshin, D.W. Ming, A.P. Zent, D.C. Golden, K.E. Kerry, H.V. Lauer, and R.C. Quinn "Thermal and Evolved Gas Analyzer: Part of the Mars Volatile and Climate Surveyor integrated payload." *J. Geophys. Res.*, 106, 17673-17698 (2001).
- Bunch, T.E. and J. Wittke "A new ordinary chondrite, Little Ash Creek (LL6)." *The Meteoritical Bull.*, 85, MAPS 13 (2001).

- Bunch, T.E. and J. Wittke "New meteorites from Northwest Africa: NWA 032 (Lunar basalt), NWA 770 (CH), NWA 771 (ureilite), NWA 772 (CK3), NWA 776 (howardite), and NWA 777 (LL6)." *The Meteoritical Bull.*, 85, MAPS 7-9 (2001).
- Burns, J.A., D.P. Hamilton, and M.R. Showalter "Dusty Rings and Circumplanetary Dust: Observations and Simple Physics" in "Interplanetary Dust." Edited by: E. Grün Springer-Verlag, Heidelberg, Germany, pp 642-725 (2001).
- Cabrol, N.A., and E.A. Grin "The evolution of lacustrine environments on Mars: Is Mars only Hydrologically Dormant?" *Icarus*, 149, 291-328 (2001).
- Cabrol, N.A., and E.A. Grin "The evolution of lacustrine environments on Mars from Viking to MGS and its astrobiological significance." European Geophysical Society (EGS) General Assembly, (2001).
- Cabrol, N.A., D.D. Wynn-Williams, D.A. Crawford, and E.A. Grin "Recent Aqueous environments in impact crater lakes on Mars: An Astrobiological perspective." *Icarus*, 154, 98-112 (2001).
- Cabrol, N.A., D.D. Wynn-Williams, D.A. Crawford, and E.A. Grin "Recent aqueous environments in impact craters and the Astrobiology exploration of Mars." LPSC XXXII, 1251 (2001).
- Cabrol, N.A., E.A. Bettis III , B. Glenister, G. Chong, C. Herrera,, A. Jensen, M. Pereira, C.R. Stoker, E.A. Grin, R. Landheim, G. Thomas, J. Golden, K. Saville, G. Ludvigson, and B. Witzke "Identification of Paleolife Evidence Using A Robotic Vehicle: Lessons and Recommendations for a Mars Sample Return Mission." *J. Geophys. Res.*, 106(E4), 7639-7663 (2001).
- Cabrol, N.A., E.A. Grin, and D.D. Wynn-Williams "Exploring Impact Crater Lakes in 2003." First Landing Site Workshop for the 2003 Mars Rover exploration Rovers, 10-11 (2001).
- Cabrol, N.A., E.A. Grin, and D.D. Wynn-Williams "Prolonged ponding episode in C-Newton crater in recent geological times on Mars." LPSC XXXII, 1255 (2001).
- Cabrol, N.A., E.A. Grin, and J.M. Dohm "From Gullies to Glaciers: A Morphological Continuum Supporting a Recent Climate Change on Mars." AGU Fall Assembly, San Francisco, (2001).
- Cabrol, N.A., G.C. Chong-Diaz, D. Wettergreen, C.R. Stoker, J.M. Dohm, R. Keaten, K. Schwcher, V.C. Gulick, R. Landheim, P. Lee, T.L. Roush, A.P. Zent, C. Herrera Lameli, A. Jensen Iglesia, M. Pereira Arredondo, G.C. Dunfield, L. Pedersen, M.G. Bualat, D. Christian, C. Mina, M.H. Sims, H.J. Thomas, D.J. Tucker, and E. Zbinden "Science results of the Atacama Nomad rover field experiment, Chile: Implications for planetary exploration." *J. Geophys. Res.*, 106(E4), 7664-7675 (2001).
- Cabrol, N.A., G. Chong-Diaz, C.R. Stoker, V.C. Gulick, R. Landheim, P. Lee, T.L. Roush, A.P. Zent, C. Herrera Lameli, A. Jensen Iglesia, M. Pereira Arrenondo, J.M. Dohm, R. keaten, D. Wettergreen, M.H. Sims, K. Schwcher, M.G. Bualat, H.J. Thomas, E. Zbinden, D. Christian, L. Pederson, A. Bettis III, G. Thomas, and B. Witzke "Nomad Rover Field Experiment, Atacama desert, Chili, 1, Science results overview." *J. Geophys. Res.*, 106, 7785-7806 (2001).
- Cassell, A., Delzeit, L., Nguyen, C., Stevens, R., Han, J., and Meyyappan, M. "Carbon nanotubes by CVD and applications." *J. Phys IV France*, 11, Pr3, 401-409 (2001).
- Cassell, A.M., Verma, S., Delzeit, L., Meyyappan, M., and Han, J. "Combinatorial Optimization of Heterogeneous Catalysts Used in the Growth of Carbon Nanotubes." *Langmuir*, 17, 260-264 (2001).

- Catling, D.C., K.J. Zahnle, and C.P. McKay "Biogenic methane, hydrogen escape, and the irreversible oxidation of early Earth." *Science*, 293, 839-843 (2001).
- Chambers, J.E., and G.W. Wetherill "Planets in the Asteroid Belt.." *Meteoritics*, 36, 381-400 (2001).
- Chambers, J.E. "Comparing Planetary Accretion in Two and Three Dimensions." *Icarus*, 149, 262-276 (2001).
- Chambers, J.E., J.J. Lissauer, and A. Morbidelli "Planet V and the Origin of the Lunar Late Heavy Bombardment." *Bulletin of the American Astronomical Society*, 33, 1082 (2001).
- Chambers, J.E. "Making More Terrestrial Planets ." *Icarus*, 152, 205-224 (2001).
- Chan, K-W., Roellig, T.L., Onaka, T., Mizutani, M., Okumura, K., Yamamura, I., Tanabe, T., Shiba, H., Nakagawa, T., and Okuda, H. "Unidentified Infrared Emission Bands in the Diffuse Interstellar Medium." *Ap.J.*, 546, 273-278 (2001).
- Chaput, C., Bloom, E., Cominsky, L., Godfrey, G., Hertz, P., Scargle, J., Shabad, G., Wen, H., Wood, K., and Yentis, D. "A Search for Aperiodic Millisecond Variability in Cygnus X-1." *Ap. J.*, 541, 1026 (2001).
- Charnley, S.B., and Rodgers, S.D. "On an Interstellar Origin for  $^{15}\text{N}$  Fractionation in Meteorites." *LPSC XXXII*, Abstract #1437 (2001).
- Charnley, S.B., Ehrenfreund, P., and Kuan, YJ. "Spectroscopic Diagnostics of Organic Chemistry in the Protostellar Environment." *Spectrochimica Acta, Part A: Molecular & Biomolecular Spectroscopy*, 57, 685 (2001).
- Charnley, S.B. "Interstellar Organic Chemistry" in "The Bridge Between the Big Bang and Biology." Edited by: Ed. F. Giovannelli, Consiglio Nazionale delle Ricerche President Bureau, Rome:Italy, Special Volume, pp 139 (2001).
- Charnley, S.B., Rodgers, S.D., and Ehrenfreund, P. "Gasgrain chemical models of starforming molecular clouds as constrained by ISO and SWAS observations." *Astron. Astrophys.*, 378, 1024 (2001).
- Charnley, S.B. "Stochastic Theory of Molecule Formation on Dust ." *Astrophys. J. Letters*, 562, L99 (2001).
- Chiar, J.E., and Tielens, A.G.G.M. "Circumstellar Carbonaceous Material Associated with Late-Type Dusty WC Wolf-Rayet Stars." *Astrophysical Journal Letters*, 550, L207-L211 (2001).
- Chiar, J.E., Tielens, A.G.G.M., Whittet, D.C.B., Schutte, W.A., Boogert, A.C.A., Lutz, D., van Dishoeck, E.F., and Bernstein, M.P. "The Composition and Distribution of Dust Along the Line of Sight Towards the Galactic Center." *Tetons 4: Galactic Structure, Stars and the Interstellar Medium*, ASP Conference Series, Vol. 231, 179-180 (2001).
- Chillier, X., P. Boulet, H. Chermette, F. Salama, and J. Weber "Absorption and Emission Spectroscopy of Matrix-Isolated Benzo [g,h,i] Perylene. An Experimental and Theoretical Study for Astrochemical Applications." *J. Chem. Phys.*, 115, 1769 (2001).

- Christensen, P.R., J.L. Bandfield, V.E. Hamilton, S.W. Ruff, H.H. Kieffer, T.N. Titus, M.C. Malin, R.V. Morris, M.D. Lane, R.N. Clark, B.M. Jakosky, M.T. Mellon, J.C. Pearl, B.J. Conrath, M.D. Smith, R.T. Clancy, R.O. Kuzmin, T. Roush, G.L. Mehall, N. Gorelick, K. Bender, K. Murray, S. Dason, E. Greene, S. Silverman, and M. Greenfield "Mars Global Surveyor Thermal Emission Spectrometer experiment: Investigation description and surface science results." *J. Geophys. Res.-Planets*, 106, 23823-23871 (2001).
- Cooper, G., Kimmich, N., Belisle, W., Sarinana, J., Katrina Brabham, K., and Garrel, L. "Carbonaceous Meteorites as a source of sugar-related organic compounds for the Early Earth." *Nature*, 414, 879-883 (2001).
- Cruikshank, D.P., C.M. Dalle Ore, T.L. Roush, T.R. Geballe, T.C. Owen, C. de Bergh, M.D. Cash, and W.K. Hartmann "Constraints on the Composition of Trojan Asteroid 624 Hektor." *Icarus*, 153, 348-360 (2001).
- Cruikshank, D.P. "Linking Meteorites With Their Parent Bodies." *Meteoritics and Planetary Science*, 36, 192-193 (2001).
- Cuzzi, J.N., R.C. Hogan, J.M. Paque, and A.R. Dobrovolskis "Size-selective concentration of chondrules and other small particles in protoplanetary nebula turbule." *Astrophys. J.*, 546, 496-508 (2001).
- Dalton, J.B., D.L. Bove, C.A. Mladinich, R.N. Clark, B. Rockwell, G.A.S. Swayze, T. King, and S. Church "Spectral Classification of Similar Materials Using the Tetracorder Algorithm: The Calcite-Epidote-Chlorite Problem." Proc. 10th Annual JPL Airborne Earth Science Workshop, Feb. 27-Mar. 3, (2001).
- Dalton, J.B. "Infrared Spectra of Extremophile Bacteria Under Europa Conditions and Their Astrobiological Significance." *Bulletin of the American Astronomical Society*, 33, 1125 (2001).
- Dalton, J.B., J.M. Curchin and R.N. Clark "Temperature Dependence of Cryogenic Ammonia-Water Ice Mixtures and Implications for Icy Satellite Surfaces." *Lunar Planet. Sci. XXXII*, 1496 (2001).
- Darve, E., and Pohorille, A. "Calculating free energies using average force." *J. Chem. Phys.*, 115, 9169-9183 (2001).
- DeHon, R., Barlow, N., Reagan M., Bettis III, E., Foster Jr., C., Gulick V., Crumpler, L., Aubele, J., Chapman, M., and Tanaka K. "Observation of the Geology and Geomorphology of the 1999 Marsokhod Test Site." *J. Geophys. Res.*, 106, 7665-7682 (2001).
- Delzeit, L. and Blake, D. "A characterization of crystalline ice nanoclusters using transmission electron microscopy." *J Geophys Res-Planets*, 106 (E12), 33371-33379 (2001).
- Delzeit, L., B. Chen, A.M. Cassell, R.M.D. Stevens, C. Nguyen, and M. Meyyappan "Multilayered Metal Catalysts for Controlling the Density of Single Walled Carbon Nanotube Growth." *Chemical Physics Letters*, 348 (5-6), 368-374 (2001).
- Delzeit, Lance and David Blake "A characterization of crystalline ice nanoclusters using transmission electron microscopy." *Geophysical Research*, Vol. 106, No. E12, pp 33,371-33,379 (2001).
- Des Marais, D.J. "Biogeochemical Processes in Microbial Ecosystems." Second General Meeting of NASA Astrobiology Institute, Carnegie Institute, Washington DC, April, (2001).

- Des Marais, D.J., Discipulo, M., and Turk, K. "Carbon and Oxygen Budgets of Subtidal and Intertidal Cyanobacterial Mats." ASLO American Society of Limnology and Oceanography 2001 Aquatic Sciences Meeting, February 12-16, 2001, Albuquerque, NM, 46 (2001).
- Des Marais, D.J., Harwit, M., Jucks, K., Kasting, J.F., Lunine, J.I., Lin, D., Seager, S., Schneider, J., Traub, W., and Woolf, N. "Biosignatures and Planetary Properties to be Investigated by the TPF Mission." NASA Jet Propulsion Laboratory Publication, 01-008, (2001).
- Des Marais, D.J. "Isotopic evolution of the biogeochemical carbon cycle during the Precambrian." *Reviews in Mineralogy and Geochemistry*, 43, 555-578 (2001).
- Des Marais, D.J. "On the Origins of Photosynthesis." *Science*, 291, 436-437 (2001).
- Despois D., Ricaud P., Lautie N., Schneider N., Jacq T., Biver N., Lis D.C., Chamberline R.A., Phillips T.G., Miller M., Jenniskens P. "Search for extraterrestrial origin of atmospheric trace molecules - radio submm observations during the Leonids." *Earth, Moon and Planets*, 82-83, 129-140 (2001).
- Dworkin, J.P., Bernstein, M.P., Sandford, S.A., Allamandola, L.J., Deamer, D.W., Elsila, J., and Zare, R.N. "Organic Synthesis in Simulated Interstellar Ice Analogs." *Proceedings of the General Meeting of the NASA Astrobiology Institute*, April 10-12, 7-8 (2001).
- Dworkin, J.P., Deamer, D.W., Sandford, S.A., and Allamandola, L.J. "Self-Assembling Amphiphilic Molecules: Synthesis in Simulated Interstellar/Precometary Ices." *Proceeding of the National Academy of Sciences*, 98, 815-819 (2001).
- Eder, W., Jahnke, L.L., Schmidt, M and Huber, R. "Microbial diversity of the bine-seawater interface of the Kebrit Deep, Red Sea studied via 16S rRNA gene sequences and cultivation methods." *Applied and Environ. Microbiology*, 67, 3077-3085 (2001).
- Ehrenfreund, P. and Charnley, S.B. "From Astrochemistry to Astrobiology." *ESA Special Publication*, SP-496, 35 (2001).
- Ehrenfreund, P., and Charnley, S.B. "Organic molecules in the interstellar medium, comets and meteorites: A voyage from dark clouds to the early Earth." *Annu. Rev. Astron. Astrophys.*, 38, 427 (2001).
- Ehrenfreund, P., Bernstein, M.P., Dworkin, J.P., Sandford, S.A., and Allamandola, L.J. "The Photostability of Amino Acids in Space." *Astrophys. J.*, 550, L95-L99 (2001).
- Ehrenfreund, P., d'Hendecourt, L., Charnley, S.B., and Ruiterkamp, R. "Energetic and Thermal Processing of Interstellar Ices." *Journal of Geophysical Research Planets*, 106(E12), 33, 291 (2001).
- Ehrenfreund, P., Glavin, D., Botta, O., Cooper, G., and Bada, J. "Extraterrestrial amino acids in Orgueil and Ivuna: Tracing the parent body of CI type carbonaceous chondrites." *PNAS*, 98 (5), 2138 (2001).
- Elsila, J.E., Gillette, J.S., Zare, R.N., Bernstein, M.P., Dworkin, J.P., Sandford, S.A., and Allamandola, L.J. "Low temperature ice photochemistry as a source of meteoritic and cometary organics." *221st National Meeting, Amer. Chem. Soc.*, San Diego, CA, April, (2001).
- Ennico, K., Sandford, S., Cox, S., Ellis, B., Gallagher, D., Gautier, N., Greene, T., McCreight, C., Mills, G., and Purcell, W. "AstroBiology Explorer (ABE) MIDEX mission concept." *Proc. SPIE*, Volume 4495, 273-282 (2001).

- Erickson, E.F., and Colgan, S.W.J.C. "Resolution of Far-Infrared Astronomical Grating Spectrometers." *Bulletin of the American Astronomical Society*, 33, 102.11 (2001).
- Espresso, J., and J.J. Lissauer "Resonant Satellite Torques on Low Optical Depth Particulate Disks: II. Numerical Simulations." *Icarus*, 152, 29-47 (2001).
- Ewert, M., A. Drysdale, A. Hanford, and J. Levri "Life Support Equivalent System Mass Predictions for the Mars Dual Lander Reference Mission." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2358 (2001).
- Fagan, T.J., K. Keil, G.J. Taylor, T.L. Hicks, M. Killgore, T.E. Bunch, J.H. Wittke, O. Eugster, S. Lorenzetti, D.W. Mittlefehldt, R.N. Clayton and T. Mayeda "New Lunar meteorite Northwest Africa 773: Dual origin by cumulate crystallization and impact brecciation." Meteoritical Soc. Annual Mtg, Sept. 11-14, MAPS, 36, A55 (2001).
- Farmer, J.D., Bebout, B.M., and P. Visscher "Controls on microbial biosignature preservation in subaerial hydrothermal springs." GSA/GSL Earth System Processes - Global Meeting. June 24-28, 2001, Edinburgh, Scotland, (2001).
- Finn, C., K. Meyers, and B. Duffield "Dynamic Model of the BIO-Plex Air Revitalization System." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2318 (2001).
- Finn, J.E., L. Mulloth, and D. Affleck "Integrated Test of a Prototype TSA Compressor with a Space Station Carbon Dioxide Removal Processor." NASA Technical Memorandum, TM-210911, (2001).
- Finn, J.E. "Separation and Conditioning of Mars Atmospheric Gases via TSA." 2000 Annual Meeting of the AIChE, Los Angeles, CA, November 12-17, (2001).
- Fischer, D.A., Marcy, G.W., Oppenheimer, B.R., Quirrenbach, A., Frink, S., Monet, D.G., Scargle, J., and Butler, R.P. "SIM Search for Terrestrial Planets." *AAS*, 198, 6208 (2001).
- Fisher, J., S. Pisharody, M. Moran, and M. Tleimat "Incineration of Inedible Biomass in a Regenerative Life Support System – Update of Development Activities at ARC." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2344 (2001).
- Flynn, M., P. Hammer, Z. Rosenswig, T. Nguyen, and W.H. Smith "Darwin's Eye - Light at the Bottom of the Ocean." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2144 (2001).
- Fong, T.W., N. Cabrol, C. Thorpe, and C. Baur "A Personal User Interface for Collaborative Human-Robot Exploration." Proceedings of the International Symposium on Artificial Intelligence, Robotics, and Automation in Space, Montréal, Canada, June, 2001, (2001).
- Friedmann, E.I., Wierzchos,J., Ascaso,C. and Winklhofer,M. "Chains of magnetite crystals in the meteorite ALH 84001: Evidence of biogenous origin." Proceeding of the National Academy of Sciences, 98, 2176-2181 (2001).
- Galleani, L., Cohen, L., Nelson, D.J., and Scargle, J.D. "Estimating the instantaneous power spectrum of an x-ray binary system" in "SPIE." 4477, pp 123G (2001).
- Gazis, P.R., and T.L. Roush "Autonomous identification of carbonates using near-IR reflectance spectroscopy during the February 1999 Marsokhod field tests." *J. Geophys Res.-Planets*, 106, 7765-7773 (2001).

- Geballe, T.R., Saumon, D., Leggett, S.K., Knapp, G.R., Marley, M.S., and Lodders, K. "Infrared Observations and Modeling of One of the Coolest T Dwarfs: Gliese 570D." *Astrophysical Journal*, 556, 373 (2001).
- Gibb, E.L., Whittet, D.C.B., and Chiar, J.E. "Searching for Ammonia in Grain Mantles toward Massive Young Stellar Objects." *Astrophysical Journal*, 558, 702-716 (2001).
- Golombek, M., Grant, J., and Gulick, V., eds. MER 2003 Landing Site Workshop, NASA Ames, Jan. 24-25, 2001, LPI #1079, 72 (2001).
- Greene, T.P. "The Full-sky Astrometric Mapping Explorer's Potential for Observing Young Nearby Stars" in "Young Stars Near Earth: Progress and Prospects." Edited by: Ray Jayawardhana and Thomas Greene, San Francisco: Astronomical Society of the Pacific, 244, pp 348-352 (2001).
- Grin, E., C.R. Stoker, N.A. Cabrol, T. Roush, and J. Moersch "Geological Analysis of the Silver Lake Marsokhod Field Test Site from Ground-Truth Sampling." *J. Geophys. Res.*, 106(E4), 7733-7744 (2001).
- Gulick V.C., and Urquhart, M.L. "White Mars Rebuffed." *Mercury*, 30, 5 (2001).
- Gulick, V.C., Deardorff, D.G., and Briggs, G.A. "A virtual environment for Mars studies." 2003 MER landing site workshop, LPI #1079, 31-32 (2001).
- Gulick, V.C., Morris, R.L., Ruzon, M., and Roush, T. "Autonomous Image Analysis during the 1999 Marsokhod field test." *J. Geophys. Res.*, 106, 7745-7763 (2001).
- Gulick, V.C. "Origin of the valley networks on Mars: A hydrological perspective." *Geomorphology*, 37, 241-268 (2001).
- Gulick, V.C. "Potential Mars exploration rover landing sites west and southwest of Apollinaris Patera." 2003 MER landing site workshop, LPI #1079, 29-30 (2001).
- Gulick, V. "Grd H<sub>2</sub>O considerations for the formation of small Martian gullies." LPSC XXXII, #2193 (2001).
- Haberle, R.M., C.P. McKay, N. Cabrol, E. Grin, J. Schaeffer, A.P. Zent, and R.C. Quinn "On the possibility of liquid water on present day Mars." *J. Geophys. Res.*, 106, 23317-23326 (2001).
- Haisch, K.E., Jr., Greene, T.P., Barsony, M., and Ressler, M. "A Near/Mid-Infrared Imaging Survey for Protostellar Binaries in Rho Ophiuchus and Serpens." American Astronomical Society Meeting 199, #04.10 (2001).
- Hammel, H., K. Rages, G.W. Lockwood, E. Karkoschka, and I. dePater "New measurements of the winds of Uranus." *Icarus*, 153, 229-235 (2001).
- Helou, G., Malhotra, S., Hollenbach, D.J., Dale, D., and Contursi, A. "Evidence for the Heating of Atomic Interstellar Gas by Polycyclic Aromatic Hydrocarbons." *ApJLett*, 548L, 73-77 (2001).
- Hoehler, T.M., Bebout, B.M., and Des Marais, D.J. "Hydrogen fluxes from photosynthetic communities: implications for early Earth biogeochemistry." American Society for Limnology and Oceanography, Albuquerque, NM, 69 (2001).
- Hoehler, T.M., Bebout, B.M. and Des Marais, D.J. "The role of microbial mats in the production of reduced gases on the early Earth." *Nature*, 412, 324-327 (2001).

- Hoehler, T.M., M.J. Alperin, D.B. Albert, and C.S. Martens "Apparent minimum free energy requirements for methanogenic archaea and sulfate-reducing bacteria in an anoxic marine sediment." *FEMS Microbiology Ecology*, 38(1), 33-41 (2001).
- Hogan, R.C., and J.N. Cuzzi "Stokes and Reynolds number dependence of preferential particle concentration in simulated 3D turbulence." *Phys. Fluids*, 13, 2938-2945 (2001).
- Hollenbach, D.J., Parravano, A., and McKee, C. "Star Formation in the Galaxy and the Fluctuating UV Radiation Field." *B.A.A.S.*, volume 33, 1482 (2001).
- Holman, D., and Jenniskens, P. "Leonid Storm Flux from Efficient Visual Scanning of 1999 Leonid Storm Video Tapes." *WGN, the Journal of IMO*, 29, 77-84 (2001).
- Hony, S., C. Van Kerckhoven, E. Peeters, A.G.G.M. Tielens, D.M. Hudgins, and L.J. Allamandola "The CH out-of-plane bending modes of PAH molecules in astrophysical environments." *Astron. Astrophys.*, 370, 1030-1043 (2001).
- Hudgins, D.M., Bauschlicher, Jr., C.W., and Allamandola, L.J. "Closed-Shell Polycyclic Aromatic Hydrocarbon (PAH) Cations: A New Category of Interstellar Polycyclic Aromatic Hydrocarbons." *Spectrochimica Acta A*, 57, 907-930 (2001).
- Hudgins, D.M. "Infrared Spectra of Matrix-Isolated Polycyclic Aromatic Compounds: Heterocyclic Aromatic Amines and their Ions." The 18th International Symposium On Polycyclic Aromatic Compounds, Cincinnati, Ohio, September 9-13, (2001).
- Hudgins, D.M. "Interstellar Polycyclic Aromatic Compounds and Astrophysics." The 18th International Symposium On Polycyclic Aromatic Compounds, Cincinnati, Ohio, September 9-13, (2001).
- Hunter, Deidre A., Kaufman, Michael, Hollenbach, David J., Rubin, Robert H., Malhotra, Sangeeta, Dale, Daniel A., Brauher, James R., Silbermann, Nancy A., Helou, George, Contursi, Alessandra, and Lord, Steven D. "The Interstellar Medium of Star-forming Irregular Galaxies: The View with ISO." *ApJ*, 553, 121-145 (2001).
- Iacomini, C.S., K.R. Sridhar, and J.E. Finn "Resource Utilization - A Smart Way to Explore Space." 39th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Paper No. AIAA-2001-0940 (2001).
- Jahnke, L.L., Eder, W., Huber, R., Hinrichs, K.-U., Hayes, J.M., Des Marais, D.J., Cady, S.L., and Hope, J.M. "Composition of hydrothermal vent microbial communities as revealed by analysis of signature lipids, stable carbon isotopes and Aquificales cultures." Second General Meeting of NASA Astrobiology Institute, Carnegie Institute, Washington DC, April, (2001).
- Jahnke, L.L., Eder, W., Huber, R., Hinrichs, K.-U., Hayes, J.M., Des Marais, D.J., Cady, S.L., Hope, J.M., and Summons, R.E. "Composition of hydrothermal vent microbial communities as revealed by analysis of signature lipids, stable carbon isotopes and Aquificales culture." 11th Annual V.M. Goldschmidt Conference, Abstract #3717. LPI Contribution No. 1088, Lunar and Planetary Institute, Houston (CD-ROM), (2001).
- Jahnke, L.L., Eder, W., Huber, R., Hope, J.M., Hinrichs, K.-U., Hayes, J.M., Des Marais, D.J., Cady, S.L., and Summons, R.E. "Signature Lipids and Stable Carbon Isotope Analyses of Octopus Spring Hyperthermophilic Communities Compared with Those of Aquificales Representatives." *Applied and Environmental Microbiology*, 67(11), 5179-5189 (2001).

- Jahnke, L.L., Summons, R.E., Hope, J.M., and Cullings, K.W. "Carbon isotopic fractionation associated with cyanobacterial biomarkers: 2-Methylhopanoids and methyl-branched alkanes." 11th Annual V.M. Goldschmidt Conference Abstract #3748. LPI Contribution No. 1088, Lunar and Planetary Institute, Houston (CD-ROM), (2001).
- Jayawardhana, R., and Greene, T., eds. "Young Stars Near Earth: Progress and Prospects." Edited by: Ray Jayawardhana and Thomas Greene, San Francisco: Astronomical Society of the Pacific, 244, (2001).
- Jenniskens, P., and Lyytinen, E. "No outburst of comet C/2000 WM1 (Linear)." WGN, the Journal of IMO, 29(1), 35-37 (2001).
- Jenniskens, P., and Lyytinen, E. "Possible Ursid Outburst on December 22, 2000." WGN, the Journal of the IMO, 28(6), 221-226 (2001).
- Jenniskens, P., and Lyytinen, E. "Ursid outburst confirmed." WGN, the Journal of the IMO, 29(1), 41-45 (2001).
- Jenniskens, P. "Discoveries from Observations and Modeling of the 1998/99 Leonids" in "Interplanetary Dust." Edited by: Eberhard Gruen, Bo Å.S. Gustafson, Stan Dermott, and Hugo Fechtig, Springer Verlag, Heidelberg, New York, pp 233-252 (2001).
- Jenniskens, P. "Forecast for the remainder of the Leonid storm season." ESA Special Publication, SP-495, 83-90 (2001).
- Jenniskens, P. "Meteors as a vehicle for the delivery of organic matter to the early Earth." ESA Special Publication, SP-495, 247-254 (2001).
- Jenniskens, P. "Model of a 1-revolution dust trail from Leonid outburst observations." WGN, the Journal of IMO, 29(5), 165-175 (2001).
- Johnson J.R., S.W. Ruff, J. Bishop, N.A. Cabrol, C. Cockell, P. Gazis, J. Moersch, T. Roush, C. Stoker, K. Horton, H.E. Newsom, and E.A. Grin "Geological Characteristics of Remote Field Sites Using Infrared Spectroscopy: Results from the 1999 Marsokhod Field Test." *J. Geophys. Res.*, 106(E4), 7683-7711 (2001).
- Jones, B.W., P.N. Sleep, and J.E. Chambers "Stability of the Orbits of Terrestrial Planets in the Habitable Zones of Known Exoplanetary Systems." *Astronomy & Astrophysics*, 366, 254-262 (2001).
- Jones, H.W., C. Finn, X. Kwauk, and C. Blackwell "Modeling Separate and Combined Atmospheres in BIO-Plex." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2361 (2001).
- Jones, H.W. "Extraterrestrial Ecology (Exoecology)." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2143 (2001).
- Jones, H.W. "Survey of Modeling Failures, Dynamics, and Nonlinearities in Advanced Life Support Systems." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2302 (2001).
- Jones, H.W. "The Cost and Equivalent System Mass of Space Crew Time." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2359 (2001).

- Kanefsky, B., Barlow, N., and Gulick, V. "Can distributed volunteers accomplish massive data analysis tasks?." LPSC XXXII, #1272 (2001).
- Keller, R. and B. Bebout "Knowledge Representation and Collaboration in Science." Intelligent Systems Program Human Centered Systems PI Meeting, NASA Ames Research Center, Moffett Field, CA, (2001).
- Khare, B.N., E.L.O. Bakes, D. Cruikshank, and C.P. McKay "Solid organic matter in the atmosphere and on the surface of outer solar system bodies." *Adv. Space Res.*, 27(2), 299-307 (2001).
- Komatsu, G., Gulick, V.C., and Baker, V.R. "Channels and valleys on Venus." *Geomorphology*, 37, 225-240 (2001).
- Kuan, Y.J., Huang, H.C., Charnley, S.B. Snyder, L.E., Wilson, T.L., Bohn, R.K., Ohishi, M., Lovas, F.J., Butner, H.M., and Thorwirth, S. "Search for Large Interstellar Organic Molecules" in "Frontiers of Life." XIIemes Rencontres de Blois; France, (2001).
- Lanyi, J.K., and Pohorille, A. "Proton pumps: mechanism of action and applications." *Trends Biotechnol.*, 19, 140-144 (2001).
- Laughlin, G., and J.E. Chambers "Short-Term Dynamical Interactions Among Extrasolar Planets." *Astrophysical Journal Letters*, 551, L109-113 (2001).
- Lebonnois, S., Bakes, E.L.O., and McKay, C.P. "Relations between photochemistry and haze in Titan's atmosphere." American Astronomical Society, DPS meeting #33, #38.09 (2001).
- Levri, J., and C. Finn "Practical Scheduling Considerations of Waste Heat Reuse for a Mars Mission Advanced Life Support System." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2363 (2001).
- Levri, J., J.A. Hogan, M.P. Alazraki "Evaluation Criteria for Solid Waste Processing Research and Technology Development." 17th Annual American Society for Gravitational and Space Biology Meeting, Alexandria, Virginia, (2001).
- Levri, J., M. Ewert, V. Kloeris, M. Perchonok, L. Peterson, B. Swango, M. Toerne, and E. Vittadini "Food System Trade Study for an Early Mars Mission." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper No. 2001-01-2364 (2001).
- Lissauer, J.J., and E.J. Rivera "Stability Analysis of the Planetary System Orbiting u Andromedae. II: Simulations using new Lick Observatory fits." *Astrophys. J.*, 554, 1141-1150 (2001).
- Lissauer, J.J., E.V. Quintana, E.J. Rivera, and M.J. Duncan "The Effect of a Planet in the Asteroid Belt on the Orbital Stability of the Terrestrial Planets." *Icarus*, 154, 449-458 (2001).
- Lissauer, J.J. "Time for Gas Planets to Grow." *Nature*, 409, 23-24 (2001).
- Litwiller, E., M. Flynn, M. Reinhard, and J. Fisher "Lyophilization for Water Recovery." 31st Intl. Conf. on Environ. Systems (ICES), SAE Technical Paper Series 2001-01-2348 (2001).
- Lobitz, B., B.L. Wood, M.A. Averner, and C.P. McKay "Use of spacecraft data to derive regions on Mars where liquid water would be stable." *Proceed. Nat. Acad. Sci.*, 98, 2132-2137 (2001).

- Londry, K.L., Jahnke, L.L., and Des Marais, D.J. "Stable carbon isotope ratios of lipid biomarkers and biomass for sulfate-reducing bacteria grown with different substrates." 11th Annual V.M. Goldschmidt Conference, Abstract #3404. LPI Contribution No. 1088, Lunar and Planetary Institute, Houston (CD-ROM), (2001).
- Lorenz, R.D., J.I. Lunine and C.P. McKay "Geological settings for aqueous synthesis on Titan revisited." Enantiomer, 6, 83-96 (2001).
- Lorenz, R.D., J.I. Lunine, P.G. Withers, and C.P. McKay "Titan, Mars and Earth: Entropy production by latitudinal heat transport." Geophys. Res. Lett., 28, 415-418 (2001).
- Mackay D.D.S., and Charnley, S.B. "Phosphorus in Circumstellar Envelopes." Mon. Not. R. astr. Soc., 325, 545 (2001).
- Malhotra, S., Kaufman, M.J., Hollenbach, D., Helou, G., Rubin, R.H., Brauher, J., Dale, D., Lu, N.Y., Lord, S., Stacey, G., Contursi, A., Hunter, D.A., and Dinerstein, H. "Far-Infrared Spectroscopy of Normal Galaxies: Physical Conditions in the Interstellar Medium." ApJ, 561, 766-786 (2001).
- Maloney, P., Colgan, S., Cotera, A., and Hollenbach, D.J. "ISO Observations of the Galactic Black Hole Candidates 1E1740.7-2942 and GRS 1758-258." ApSSS, volume 276, 97-99 (2001).
- Marcy, G.W., R.P. Butler, D. Fischer, S.S. Vogt, J.J. Lissauer, and E.J. Rivera "A Pair of Resonant Planets Orbiting GJ 876." Astrophys. J., 556, 296-30 (2001).
- Marinova, M., and C.P. McKay "Terraforming Mars" in "The Sci-Fi Factor." Perfection Learning Corporation, Logan Iowa, pp 30-35 (2001).
- Markwick, A.J., Charnley, S.B., and Millar, T.J. "Deuterium Fractionation Along the TMC1 Ridge." Astron. Astrophys., 376, 1054 (2001).
- Marley, M.S. "Models of Young Brown Dwarfs and Giant Planets" in "Young Stars Near Earth: Progress and Prospects." Edited by: Ray Jayawardhana and Thomas Greene, San Francisco: Astronomical Society of the Pacific, 244, pp 316 (2001).
- Marshall, J., and J.N. Cuzzi "Electrostatic enhancement of coagulation in protoplanetary nebulae." LPSC XXXII, 1262-1263 (2001).
- Martin, E.L., Brandner, W., Jewitt, D.C., Simon, T., Wainscoat, R., Connelley, M., Marley, M., and Gelino, C. "Probing the Substellar Regime with SIRTF." Proc. Astron. Soc. Pacific 113, 529 (2001).
- Mattioda, A.L., D.M. Hudgins, C.W. Bauschlicher, and L.J. Allamandola "Infrared Spectra of Heterocyclic Aromatic Amines and Their Ions." Euroconference Matrix 2001, Szklarska Poreba, Poland, July 2001, (2001).
- McKay, C.P., A. Coustenis, R.E. Samuelson, M.T. Lemmon, R.D. Lorenz, M. Cabane, P. Rannou, and P. Drossart "Physical properties of the organic aerosols and clouds on Titan." Planet. Space Sci., 49, 79-99 (2001).
- McKay, C.P., and M.M. Marinova "The physics, biology, and environmental ethics of making Mars habitable." Astrobiology, 1, 89-109 (2001).
- McKay, C.P. "Let's put Martian Life First." The Planetary Report, 21, 4-5 (2001).

- McKay, C.P. "The deep biosphere: Lessons for planetary exploration" in "Subsurface Microbiology and Biochemistry." Edited by: J.K. Fredrickson and M. Fletcher, Wiley, John & Sons, Incorporated, pp 315-327 (2001).
- McMillan, R.A., H. Kagawa, T. Yaoi, C. Paavola, R. Mogul, M. Meyyappan, and J. Trent "Ordered Two-Dimensional Hexagonal Arrays Formed from Extremophilic Heat Shock Proteins." 9th Foresight Conference on Molecular Nanotechnology, Santa Clara, CA, (2001).
- Melnick, G., Neufeld, D., Ford, K., Hollenbach, D.J., and Ashby, M. "Discovery of Water Vapour Around IRC+10216 As Evidence for Comets Orbiting Another Star." *Nature*, 412, 160-164 (2001).
- Millar T.J., Roberts H., Markwick A.J., and Charnley, S.B. "The Role of H<sub>2</sub>D<sup>+</sup> in the Deuteriation of Interstellar Molecules." *Phil. Trans. R. Soc. Lond. A*, 358, 2535 (2001).
- Miller, S.R., and B.M. Bebout "Evolution of the resistance of photosystem II to sulfide in cyanobacteria." 7th Cyanobacterial Workshop: A Signal Event, July 27-31, 2001, Asilomar, CA, (2001).
- Miller, S.R., and B.M. Bebout "Evolution of the resistance of photosystem II to sulfide in cyanobacteria." American Society for Microbiology General Meeting, May 20-24, 2001, Orlando, FL, (2001).
- Moore, J.M., and D.E. Wilhelms "Hellas as a possible site of ancient ice-covered lakes on Mars." *Icarus*, 154, 258-276 (2001).
- Moore, J.M., E. Asphaug, M.J.S. Belton, B. Bierhaus, H.H. Breneman, S.M. Brooks, C.R. Chapman, F.C. Chuang, G.C. Collins, B. Giese, R. Greeley, J.W. Head III, S. Kadel, K.P. Klaasen, J.E. Klemaszewski, K.P. Magee, J. Moreau, D. Morrison, G. Neukum, R.T. Pappalardo, C.B. Phillips, P.M. Schenk, D.A. Senske, R.J. Sullivan, E.P. Turtle, and K.K. Williams "Impact features on Europa: Results of the Galileo Europa Mission (GEM)." *Icarus*, 151, 93-111 (2001).
- Moore, J.M., R.J. Sullivan, F.C. Chuang, J.W. Head III, A.S. McEwen, M.P. Milazzo, B.E. Nixon, R.T. Pappalardo, P.M. Schenk, and E.P. Turtle "Landform degradation and slope processes on Io: The Galileo view." *J. Geophys. Res.*, 106, 33223-33240 (2001).
- Morbidelli, A., J.-M. Petit, B. Gladman, and J.E. Chambers "A Plausible Cause of the Late Heavy Bombardment." *Meteoritics*, 36, 371-380 (2001).
- Mosqueira, I., Estrada, P.R., J.N. Cuzzi, and S.W. Squyres "Circumjovian disk clearing after gap opening and the formation of a partially differentiated Callisto." Proceedings of the Lunar and Planetary Science Conference, volume 32, 1989-1990 (2001).
- Natta, A., Prusti, T., Neri, R., Wooden, D., Grinin, V.-P., and Mannings, V. "A reconsideration of disk properties in Herbig Ae stars." *Astronomy and Astrophysics*, 371, 186-197 (2001).
- Navarro-Gonzalez, R., C.P. McKay, D.N. Mvondo "A possible nitrogen crisis for Archaean life due to reduced nitrogen fixation by lightning." *Nature*, 412, 61-64 (2001).
- Newsom, H.E., Bishop, J.L., Cockell, C., Roush, T.L., and Johnson, J.R. "Search for life on Mars in surface samples: Lessons from the 1999 Marsokhod rover field experiment." *J. Geophys. Res.*, 106, 7713-7720 (2001).
- Nguyn, C.V, Chao, K.-J., Stevens, R., Delzeit, L., Cassell, A., Han, J., and Meyyappan, M. "Carbon nanotube tip probes: stability and lateral resolution in scanning probe microscopy and application to surface science in semiconductors." *Nanotechnology*, 12, 363-367 (2001).

- Nna Mvondo, D., R. Navarro-Gonzalez, C.P. McKay, P. Coll, and F. Raulin "Production of nitrogen oxides by lightning and coronae discharges in simulated early Earth, Venus, and Mars environments." *Adv. Space Res.*, 27(2), 217-223 (2001).
- Norris, J.P., Scargle, J.D., and Bonnell, J.T. "Short Gamma-Ray Bursts Are Different." *Gamma Ray Burst Conference*, (2001).
- Nummelin, A., Whittet, D.C.B., Gibb, E.L., Gerakines, P.A., and Chiar, J.E. "Solid Carbon Dioxide in Regions of Low-Mass Star Formation." *Astrophysical Journal*, 558, 185-193 (2001).
- Onaka T., Yamamura I., Chan K.-W., Ishihara D., Ootsubo T., Tanabe T., Murakami H., Roellig T. L., and Cohen M. "Flight Calibration of the Mid-Infrared Spectrometer (MIRS) on board the IRTS." *ESA Special Publication*, SP-481, 1-4 (2001).
- Owen, T.C., D.P. Cruikshank, C.M. Dalle Ore, T.R. Geballe, T.L. Roush, C. de Bergh, Y.J. Pendleton, and B.N. Khare "Decoding the Domino: The Dark Side of Iapetus." *Icarus*, 149, 160-172 (2001).
- Pace, G.S., and J.E. Finn "Performance and Low-temperature Survivability of a High-speed Blower for Mars Surface Operations." *NASA Technical Memorandum*, TM-210910, (2001).
- Parusel, A., and Pohorille, A. "A semiempirical study of the optimized ground and excited state potential energy surfaces of retinal and its protonated Schiff base." *J. Photochem and Photobiol. B: Biol.*, 65, 13-21 (2001).
- Pawlowski, C.W., A.M. Bell, S. Crawford, W.A. Sethares, and C. Finn "Advanced Control Techniques for Efficient and Robust Operation of Advanced Life Support Systems." *SAE Technical Paper No. 2001-01-2298*, (2001).
- Pequignot, Daniel, Ferland, Gary, Netzer, Hagai, Kallman, Tim, Ballantyne, David, Dumont, Anne-Marie, Ercolano, Barbara, Harrington, Patrick, Kraemer, Steve, Morisset, Christophe, Nayakshin, Sergei, Rubin, Robert H., and Sutherland, Ralph "Photoionization Model Nebulae" in "Spectroscopic Challenges of Photoionized Plasmas, ASP Conference series." Edited by: G.J. Ferland & D.W. Savin 247, pp 533-556 (2001).
- Petit, J.-M., A. Morbidelli, and J.E. Chambers "The Primordial Excitation and Clearing of the Asteroid Belt." *Icarus*, 153, 338-347 (2001).
- Pizzarello, S., and Cooper, G.W. "Molecular and chiral analysis of amino acid derivatives from the Murchison and Murray meteorites." *Meteoritics and Planetary Science*, 36 (7), 897 (2001).
- Pizzarello, Sandra, Yongsong Hang, Luann Becker, Robert J. Poreda, Ronald A. Nieman, George Cooper, and Michael Williams "The organic content of the Tagish Lake meteorite, a new pathway in prebiotic chemical evolution." *Science*, 293, 2236-2239 (2001).
- Pohorille, A., and Deamer, D. "Artificial cells: Prospects for biotechnology." *Trends Biotechnol*, 20, 123-128 (2001).
- Pohorille, A., and Wilson, M.A. "Unassisted and assisted ion transport across membranes: insights from computer simulations." *Cell. Mol. Biol. Lett.*, 6, 369-374 (2001).
- Quinn, R.C., and A.P. Zent "Limits on UV Photodecomposition of Martian Carbonates." *Bulletin of the American Astronomical Society*, 33, 1126 (2001).

- Race, M., D.L. DeVincenzi, J. Rummel, and S. Acevedo, eds. "Mars Sample Handling Protocol Workshop Series, Workshop 3 Final Report." NASA Conference Publications, CP-211388, (2001).
- Race, M., G. Kovacs, J. Rummel, and S. Acevedo, eds. "Mars Sample Handling Protocol Workshop Series, Workshop 2 Final Report." NASA Conference Publications, CP-210923, (2001).
- Rages, K., Hammel, H., G.W. Lockwood, and M. Marley "Variability on Uranus and Neptune during HST Cycle 9." Bulletin of the American Astronomical Society, 33, 1079 (2001).
- Reilly, K.T., Bloom, E.D., Focke, W., Giebels, B., Godfrey, G., Saz Parkinson, P.M., Shabad, G., Ray, P.S., Bandyopadhyay, R.M., Wood, K.S., Wolff, M.T., Fritz, G.G., Hertz, P., Kowalski, M.P., Lovellette, M.N., Yentis, D.J., and Scargle, J.D. "USA Experiment Observation of Spectral and Timing Evolution During the 2000 Outburst of XTE J1550-564." Ap. J. Letters, 561, 183 (2001).
- Reysenbach, A.-L., M. Voytek, and R.L. Mancinelli, eds. "Thermophiles: Biodiversity, Ecology and Evolution." Kluwer Academic/Plenum Publishers, New York, pp 205 (2001).
- Ricca, A., C. Bauschlicher and E.L.O. Bakes "Mechanisms for the Incorporation of a Nitrogen Atom into Polycyclic Aromatic Hydrocarbons." Icarus, 154, 516 (2001).
- Rivera, E.J., and J.J. Lissauer "Dynamical Models of the Resonant Pair of Planets Orbiting the Star GJ 876." Astrophys. J., 558, 392-402 (2001).
- Rodgers, S.D., and Charnley, S.B. "Chemical Differentiation in Regions of Massive Star Formation." Astrophys. J., 546, 324 (2001).
- Rodgers, S.D., and Charnley, S.B. "Gas Phase Production of NHD<sub>2</sub> in L134N." Astrophys. J., 553, 613 (2001).
- Rodgers, S.D., and Charnley, S.B. "On the Origin of HNC in Comet Lee." Mon. Not. R. Astr. Soc., 323, 84 (2001).
- Rodgers, S.D., and Charnley, S.B. "Organic Synthesis in the Coma of Comet HaleBopp?." Mon. Not. R. Astr. Soc., 320, L61 (2001).
- Rodriguez, L.F., C. Finn, S. Kang, and J. Hogan "Modeling of a Compost System within BIO-Plex." SAE Technical Paper No. 2001-01-2323, (2001).
- Rothschild, L.J., and R.L. Mancinelli "Life in extreme environments." Nature, 409, 1092-1101 (2001).
- Roush, T.L., and J.B. Dalton ", Low Temperature Reflectance Spectroscopy of Titan Tholins." Bulletin of the American Astronomical Society, 33, 1155 (2001).
- Roush, T.L., and R.C. Hogan "Compositional Variability Associated with Stickney Crater on Phobos." LPSC XXXII, Abstract #1915 (2001).
- Roush, T.L. "Crystalline Silicates on Asteroids and Small Planetary Satellites." Workshop on Interstellar Silicates, 17-20 April, Leiden, Netherlands, (2001).
- Roush, T.L. "Physical State of Ices in the Outer Solar System." J. Geophys. Res.-Planets, 106, 33315-33323 (2001).
- Roush, T.L. "Robotic Exploration, the Role of Science Autonomy." Workshop on Exploration of Mars Surface and Its Terrestrial Analogues, 25-27 September, Tozeur, Tunisia, (2001).

- Roush, T.L. "Science Autonomy in Robotic Exploration." MEPAG-CAPTEM Workshop on in-situ and Laboratory Science for Mars, 15-16 August, Arcadia, California, (2001).
- Rubin, R.H., Dufour, R.J., Geballe, T.R., Colgan, S.W.J., Harrington, J.P., Lord, S.D., Liao, A.L., and Levine, D.A. "Infrared Spectroscopy of Atomic Lines in Gaseous Nebulae" in "Spectroscopic Challenges of Photoionized Plasmas." Edited by: G.J. Ferland & D.W. Savin, Astron. Soc. Pacific Conf. Series, San Francisco, 247, pp 479-498 (2001).
- Rubin, R.H., R.J. Dufour, P.G. Martin, G.J. Ferland, J.A. Baldwin, C.O. Ortiz, and D.K. Walter "Temperature Variations and N+/O+ in the Orion Nebula II. The Collision Strengths." Proceedings of the Seventh Texas-Mexico Conference on Astrophysics, Revista Mexicana de Astronomia y Astrofisica, vol. 10, 23-26 (2001).
- Ruiterkamp, R., P. Ehrenfreund, B. Foing, and F. Salama "ORGANICS" Experiment on the International Space Station." ESA Special Publication, SP-496, 137 (2001).
- Salama, F., and C.W. Bauschlicher, eds. "Molecular Spectroscopy in Astrophysics (Special Issue)." Spectrochimica Acta Part A: Mol. & Biomol. Spectroscopy, 57(4), 613-958 (2001).
- Salama, F. "Molecular Spectroscopy in Astrophysics: The Case of Polycyclic Aromatic Hydrocarbons." J. Molec. Struct., 563, 19 (2001).
- Sanchez-Lavega, A., G.S. Orton, R. Morales, J. Lecacheux, F. Colas, B. Fisher, P. Fukumura-Sawada, W. Golisch, D. Griep, C. Kaminski, K. Baines, K. Rages, and R. West "The merger of two giant anticyclones in the atmosphere of Jupiter." Icarus , 149, 491-495 (2001).
- Sandford, S.A. "All Fall Down." Astronomy, 29, 6, 12 (2001).
- Sandford, S.A., Bernstein, M.P., Allamandola, L.J., Goorvitch, D., and Teixeira, T.C.V.S. "The Abundances of Solid N<sub>2</sub> and Gaseous CO<sub>2</sub> in Interstellar Dense Molecular Clouds." Astrophys. J., 548, 836-851 (2001).
- Sandford, S.A., Bernstein, M.P., and Dworkin, J.P. "Assessment of the Interstellar Processes Leading to Deuterium Enrichment in Meteoritic Organics." Meteoritics and Planetary Science, 36, 1117-1133 (2001).
- Sandford, S.A. "Book review of Molecular Hydrogen in Space." Meteoritics and Planetary Science, 36, 1411-1412 (2001).
- Sandford, S.A. "Detecting and Identifying Organic Molecules in Space - The AstroBiology Explorer (ABE) MIDEX Mission Concept." Proceedings of the General Meeting of the NASA Astrobiology Institute, April 10-12, 339 (2001).
- Sandford, S.A. "Deuterium Fractionation in Analogs of Interstellar Ices: Laboratory Measurements." Deuterium in the Universe, June 25-27, Meudon, France, (2001).
- Sandford, S.A., Dworkin, J.P., Deamer, D.W., and Allamandola, L.J. "Self-assembling Amphiphilic Molecules: A Possible Linkage Between Interstellar Chemistry and Meteoritic Organics." Meteoritics and Planetary Science, 36, A181-A182 (2001).
- Sandford, S.A. "The Astrobiology Explorer (ABE) MIDEX Mission Concept – Exploring the Links Between the Interstellar Medium and Meteorites." Meteoritics and Planetary Science, 36, A181 (2001).

- Sandford, S.A. "The Composition of Organics and Volatiles in the Interstellar Medium" in "Galactic Structure, Stars, and the Interstellar Medium." Edited by: C.E. Woodward, M.D. Bicay, and J.M. Shull, Astron. Soc. Pacific Conf. Series, San Francisco, 231, pp 152-170 (2001).
- Sandford, S., Allamandola, L., Bregman, J., Ennico, K., Greene, T., Hudgins, D., and Strecker, D. "Identifying organic molecules in space: the AstroBiology Explorer (ABE) MIDEX mission concept." Proc. SPIE, Volume 4495, 170-181 (2001).
- Scargle, J.D. "Bayesian Blocks: Divide and Conquer, MCMC, and Cell Coalescence Approaches." Bayesian Inference and Maximum Entropy Methods in Science and Engineering, Vol. 567, 245-256 (2001).
- Scargle, J.D. "Bayesian Blocks in Two or More Dimensions: Image Segmentation and Cluster Analysis." Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT 2001), (2001).
- Scargle, J.D. "Bayesian Estimation of Time Series Lags and Structure." Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT 2001), (2001).
- Scargle, J.D., Crutchfield, J.P., Glymour, C., and Hewett, R. "A Processing Automaton for Intensive Data" in "Virtual Observatories of the Future." Edited by: Brunner, Djorgovski, and Szalay Astronomical Society of the Pacific Conference Series, 225, (2001).
- Schenk, P.M., W.B. McKinnon, D. Gwynn, and J.M. Moore "Flooding of Ganymede's bright terrains by low-viscosity water-ice lavas." Nature, 410, 57-60 (2001).
- Shuping, R.Y., Chiar, J.E., Snow, T.P., and Kerr, T. "A Direct Measurement of the CO Depletion in the Elias 18 Circumstellar Disk." Astrophysical Journal Letters, 547, L161-L164 (2001).
- Sogin, M., Des Marais, D.J., Stahl, D.A., and Pace, N.R. "Ecogenomics: Ensemble Analysis of Gene Expression in Microbial Communities." Second General Meeting of NASA Astrobiology Institute, Carnegie Institute, Washington DC, April, (2001).
- Stafford, K.W., L.T. Jerng, A.E. Drysdale, S. Maxwell, and J.A. Levri "Advanced Life Support Systems Integration, Modeling, and Analysis Reference Missions Document." NASA Johnson Space Center, JSC-39502, Revision A (2001).
- Steiman-Cameron, T., Wolfire, M.G., and Hollenbach, D.J. "Morphology of the Milky Way's Spiral Arms" in "Galaxy Disks and Disk Galaxies." Edited by: J. Funes and E. Corsini, ASP Publishers: San Francisco, pp 61-62 (2001).
- Stephens, D.C., Marley, M.S., Noll, K.S., and Chanover, N. "L-Band Photometry of L and T Dwarfs." Astrophys. J. Lett., 556, L97 (2001).
- Stevens, R.M.D., Nguyen, C., Cassell, A., Delzeit, L., Meyyappan, M., and Han, J. "Improved Fabrication Approach for Carbon Nanotube Probe Devices." Appl. Phys. Lett, 21, 3453-3455 (2001).
- Stoker, C., and K. Rages "Get The Red Out: Removing Diffuse Sky Illumination From Mars Pathfinder Images." LPSC XXXII, (2001).

- Stoker, C.R., Cabrol, N.A., Roush, T.R., Moersch, J., Aubele, J., Barlow, N., Bettis, E.A., Bishop, J., Chapman, M., Clifford, S., Cockell, C., Crumpler, L., Craddock, B., DeHon, R., Foster, T., Gulick, V., Grin, E., Horton, K., Hovde, G., Johnson, J.R., Lee, P.C., Lemmon, M.T., Marshall, J., Newsom, H.E., Ori, G.G., Reagan, M., Rice, J.W., Ruff, S.W., Schreiner, J., Sims, M., Smith, P.H., Tanaka, K., Thomas, H.J., Thomas, G., and Yingst, R.A. "The 1999 Marsokhod Rover Mission Simulation at Silver Lake California: Mission Overview, Data Sets, and Summary of Results." *J. Geophys. Res.*, 106, 7639-7663 (2001).
- Stoker, C.R., et al. "Two dogs, new tricks: field trials with FIDO and K9 rovers at Blackrock summit, Nevada." *Geophysical Research*, (2001).
- Sturrock, Peter A., and Scargle, Jeffrey D. "Histogram Analysis of GALLEX, GNO, and SAGE Neutrino Data: Further Evidence for Variability of the Solar Neutrino Flux." *Ap.J. Letters*, 550, 101 (2001).
- Subarnarekha, B., T.E. Bunch, A..H. Treiman, H.E.F. Amundsen, and D.F. Blake "Carbonate globules from Spitsbergen, Norway: Terrestrial analogs of the carbonates in Martian Meteorite ALH84001." *GSA Annual Mtg*, (2001).
- Thomas, G., A. Bettis, N. Cabrol, A. Rathe, and T. Foster "Analysis of Science Team Activities During the 1999 Marsokhod Rover Field Experiment: Implications for Automated Planetary Surface Exploration." *J. Geophys. Res.*, 106(E4), 7775-7783 (2001).
- Tobias C. Owen, Dale P. Cruikshank, C.M. Dalle Ore, T.R. Geballe, T. L. Roush, C. de Bergh, Roland Meier, Yvonne J. Pendleton, and Bishun N. Khare "2001 Decoding the Domino: The Dark Side of Iapetus." *Icarus*, 149, 160-172 (2001).
- Tokano, T., F.M. Neubauer, M. Laube and C.P. McKay "Three-dimensional modeling of the tropospheric methane cycle on Titan." *Icarus*, 153, 130-147 (2001).
- Travis, B., N.D. Rosenberg, and J.N. Cuzzi "Geothermal heating, convective flow, and subsurface ice on Mars." *Proceedings of the Lunar and Planetary Science Conference*, volume 32, 1390-1391 (2001).
- U.S. Patent #:** Invention Disclosure  
Delzeit, L. "A Novel Technique that Allows for the Deposition and Patterning of a Catalyst onto a Surface for the Growth of Single-walled Carbon Nanotubes." (2001).
- U.S. Patent #:** Invention Disclosure  
Delzeit, L. "An Environmentally compatible method to purify carbon nanotubes." (2001).
- Urquhart, M.L., and Gulick, V.C. "Lander detection and identification of hydrothermal deposits." 2003 MER landing site workshop, LPI #1079, 69-70 (2001).
- Verostko, C., M. Alazraki, J. Joshi, J.W. Fisher "Solids Waste Processing and Resource Recovery for Long-Duration Missions – A Workshop." SAE Technical Paper No. 2001-01-2351, (2001).
- Walch, S.P., and E.L.O. Bakes "On the reaction  $\text{CH}_2\text{NH}_2^+ + \text{HCN}/\text{HNC} \rightarrow \text{NH}_2\text{CH}_2\text{CNH}^+$ ." *Chem. Phys. Lett.*, 346, 267 (2001).
- Walch, S.P., C.W. Bauschlicher. A. Ricca and E.L.O. Bakes "On the reaction  $\text{H}_2\text{CO} + \text{NH}_3 \rightarrow \text{CH}_2\text{NH} + \text{H}_2\text{O}$ ." *Chemical Physics*, 333, 6 (2001).
- Weber, A.L. "Sugars as the optimal biosynthetic carbon substrate of aqueous life throughout the Universe." *Origins of Life and Evolution of the Biosphere*, 30, 33-43 (2001).

- Weber, A.L. "The Sugar Model: Catalysis by amines and amino acid products." *Origins of Life and Evolution of the Biosphere*, 31, 71-86 (2001).
- Weber, A.L. "The Sugar Model: Catalytic flow reactor dynamics of pyruvaldehyde synthesis from triose catalyzed by poly-L-lysine contained in a dialyzer." *Origins of Life and Evolution of the Biosphere*, 31, 231-240 (2001).
- Whittet, D.C.B., Pendleton, Y.J., Gibb, E.L., Boogert, A.C.A., Chiar, J.E., and Nummelin, A. "Observational Constraints on the Abundance and Evolution of "XCN" in Interstellar Grain Mantles." *Astrophysical Journal*, 550(2), 793-798. (2001).
- Wignarajah, K., S. Pisharody, M. Moran, and J. Fisher "Potential for Recovery of Plant Macronutrients from Space Habitat Wastes for Salad Crop Production." *SAE Technical Paper No. 2001-01-2350*, (2001).
- Wilking, Bruce A., Bontemps, Sylvain, Schuler, Richard E., Greene, Thomas P., and André, Philippe "Infrared Properties of Weak Radio Sources in the rho Ophiuchi Molecular Cloud." *Astrophysical Journal*, (551) 1, 357-366 (2001).
- Wood, K.S., Ray, P.S., Bandyopadhyay, R.M., Wolff, M.T., Fritz, G., Hertz, P., Kowalski, M.P., Lovellette, M.N., Yentis, D., Bloom, E.D., Giebels, B., Godfrey, G., Reilly, K., Saz Parkinson, P., Shabad, G., and Scargle, J. "USA Experiment and RXTE Observations of a Variable Low-Frequency Quasi-periodic Oscillation in XTE J1118+480." *Ap.J. Letters*, 544, 45 (2001).
- Wynn-Williams, D.D., N.A. Cabrol, E.A. Grin, R.M. Haberle, and C.R. Stoker "Brines in seepage channels as eluents for sub-surface relict biomolecules on Mars?." *Astrobiology*, 1(2), 165-184 (2001).
- Zent, A.P., J. Howard, and R.C. Quinn "H<sub>2</sub>O Adsorption on Smectites: Application to Diurnal Variation of H<sub>2</sub>O in the Martian Atmosphere." *J. Geophys. Res.*, 106, 14667-14674 (2001).